STATE OF SOUTH CAROLINA

BEFORE THE PUBLIC SERVICE COMMISSION

Docket No. 2019-185-E
Docket No. 2019-186-E

In re:	)	
South Carolina Energy Freedom	)	
Act (H.3659) Proceeding to	)	**DIRECT TESTIMONY OF**
Establish Duke Energy	)	**REBECCA CHILTON**
Carolinas, LLC's and Duke Energy	)	**ON BEHALF OF JOHNSON**
Progress, LLC's Standard Offer	)	**DEVELOPMENT ASSOCIATES, INC.**
Avoided Cost Methodologies,	)	
Form Contract Power Purchase	)	
Agreements, Commitment to Sell	)	
Forms,and Any Other Terms or	)	
Conditions Necessary	)	
(Includes Small Power Producers	)	
as Defined in 16 United States	)	
Code 796, as Amended)	)	

I. Introduction and Qualifications

Q. PLEASE STATE YOUR NAME, OCCUPATION, AND BUSINESS ADDRESS.

A. My name is Rebecca Chilton. I operate Izuba Consulting, a renewable energy development, finance and operations consulting firm. My business address is 101 Hunter Place, Carrboro, NC 27510.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. I received a Bachelor of Arts in History from Wellesley College and a J.D. from the University of North Carolina School of Law. I passed the North Carolina Bar in 1998 and remain an active member. I was a corporate finance associate with the law firm of Moore & Van Allen, PLLC in Charlotte, NC from 1998 to 2002, when I became associate general counsel at Self-Help, a national community development financial institution based in Durham, NC, primarily providing legal support the company's growing structured finance projects. In 2011, I served as counsel on Self-Help's first large scale renewable energy investment and in 2013 I became team lead for renewable energy lending serving developer customers primarily in utility-scale solar development in North Carolina. In April of 2016 I moved to Live Oak Bank, a national lender based in Wilmington, NC, to create their renewable energy lending program. I left Live Oak at the end of 2017 to start my private consulting practice, focusing on project development, structured finance and internal operations needs for Live Oak and other developer and lender clients across the range of renewable energy.

Q. ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?

A. I am appearing on behalf of Johnson Development Associates, Incorporated ("JDA"). JDA is a South Carolina Corporation, founded in 1986 and headquartered at 100 Dunbar Street, Spartanburg, South Carolina, 29306. JDA is a multi-division developer of industrial, multi-family, self-storage, renewable energy, and commercial projects. JDA has qualifying facilities under development, scheduled for future development, planned for possible future

development, or otherwise positioned in the interconnection queue of Duke Energy Carolinas, LLC ("DEC") and Duke Energy Progress, LLC ("DEP" and collectively with DEC, "Duke").

Q. WHAT ASSIGNMENT WERE YOU GIVEN WHEN YOU WERE RETAINED?

A. I was asked to draw on my experience in the renewable energy project finance marketplace to provide an expert perspective on the commercial reasonableness of certain terms of power purchase agreements ("PPAs") between the utility and qualifying small power production facilities as defined in PURPA[1] and Act 62[2] ("QFs"), particularly in regards to whether such terms enable or inhibit the ability of QFs to obtain regularly available, market rate financing. In addition, I was asked to draw on my experience to support or refute contentions made in the testimony proffered on behalf of Duke as to the relative weight that PURPA and/or Act 62 give to their respective legislative goals to encourage renewable energy and how the balancing of those goals might affect terms provided by the utility in PPAs for small power producer QFs.

Q. WHAT INFORMATION DID YOU REVIEW IN CONDUCTING YOUR EVALUATION?

A. I reviewed PURPA Section 210, FERC's Order No. 69 implementing regulations of such section, Act 62, and the written testimonies of Duke's George V. Brown ("Brown"), David B. Johnson ("Johnson"), Glen A. Snider ("Snider"), Steven B. Wheeler ("Wheeler") and Nick Wintermantel ("Wintermantel") submitted in this proceeding.

II. Conclusions and Recommendations

Q. WHAT CONCLUSIONS HAVE YOU REACHED?

A. On the basis of my review and evaluation, I have concluded the following:

[1] 16 U.S.C. Section 796, as amended.
[2] S.C. Code Ann. § 58-41-10.

1. PURPA prioritizes protecting ratepayers with "just and reasonable" rates but also requires that state-level regulatory bodies ("Commissions") not mandate or approve terms and conditions of utility power purchase arrangements that discriminate against QFs in competing to provide generation to the utility within the total picture of the jurisdiction's electricity generation, transmission and distribution landscape, keeping in mind PURPA's overall goal to reduce utility dependence on fossil fuels.

2. Act 62 reiterates this mandate to the South Carolina Commission to balance consumer interests with the advancement of QFs, the diversification of the utility's generation mix and the promotion of renewable energy in the state.

3. The requirements of PURPA and Act 62 that QF generation must be allowed to compete on even terms with the utility's other generation resources, both present and projected, implicitly requires that the QF be able to obtain regularly-available, market-rate financing for the costs of developing, building, and operating their projects. This requires the Commission to consider types, terms and providers of financing for QFs that are wholly different from the preferential financing that the utility enjoys by virtue of its monopoly status, history and ability to rate-base the entirety of the cost of the generation facilities that it develops and owns. PURPA and Act 62 both require the Commission to drive towards parity between QFs and the utility in financing while also keeping the ratepayer in mind.

4. QFs do not seek to be given be given access to the vast array of preferential financing options open to the monopoly utility, nor would it be practicable at this juncture to allow QFs to push the risk of long-term generation decisions, exposure on financing and cost overruns onto the ratepayer, as the utility is able to do. Rather, QFs desire fundamental equity in the core terms and provisions of their PPAs with the utility so that they will be able to obtain regularly available, market-rate financing, while accepting significant additional risks of developing, building and operating their generation facilities that the utility is shielded from.

5. "Regularly available" means that QF financing must not depend on a special program of the financing parties, the presence of a credit enhancement not broadly available, or other special circumstances. "Regularly available" also means that the terms and conditions of the QFs' revenue and interconnection contracts meet standard underwriting criteria within the mainstream capital markets. While it is true that a limited number of QFs have been able to find

financing for short term or low price PPAs, such financing, when available, is most often provided by lenders on the fringe of the capital markets with special, limited funds or relying on credit supports such as USDA guarantees that are not available to QFs generally. For instance, in my nine years with two mainstream financial institutions lending more than $750 million to utility-scale, largely QF, renewable energy projects, I never made a loan to a QF with a PPA shorter than ten years, nor do I have knowledge of any other mainstream lender who has. Unduly restrictive PPAs that for which financing is only theoretically available is not the commercially reasonable access to capital that Act 62 has set as the standard for treating small power producers on a fair and equal footing with electrical utility-owned resources.[3]

6. Access to regularly-available, market-rate financing for QFs exists in the national markets provided that the certainty of base revenue as an essential underwriting requirement can be demonstrated. In the standard underwriting process, the revenue contracts for QFs are particularly crucial because any energy facility's hard assets depreciate rather than appreciate over time. Normally, lenders base their underwriting first on primary sources of repayment – i.e., the revenue generated by the business in normal operations – and next on an analysis of the so-called "secondary source of repayment" in the hard collateral securing the financing. The lender will, to some extent, cover some of its financial exposure by assuming that, if the business fails, it can recover some funds by selling the hard collateral subject to the lender's liens. While this may be true for financing assets like real estate that hold or even increase in value over the life of the loan, a QFs' hard assets depreciate and do not cover much risk for the lender. Thus, the lender will place even more underwriting emphasis on the primary source of repayment (revenue) represented by the PPA.

7. Providing regularly-available, market-rate financing to a QF rests on a PPA contract with four primary attributes: (1) A purchase price that, when multiplied by reasonably projected generation/purchases, provides sufficient revenue to pay for the capital costs, operations and financing, including and especially the upfront "mobilization" costs of developing, building and financing the facility; (2) an initial tenor (duration or term of years) of the PPA that provides sufficient certainty of revenue over the period necessary to bring the exposure of the financing

[3] S.C. Code Ann. § 58-41-20(B).

party within acceptable market and regulatory norms; (3) the creditworthiness of the offtaker; and (4) the PPA is free from provisions that expose the QF, and thus its financing parties, to unusual risks, such as provisions that provide the utility overly broad termination rights, that subject either purchase prices or contract costs, such as integration costs, to unknown adjustment during the term.

8. The focus of the current testimony is on the first two factors: PPA pricing and PPA duration. To some extent, these two factors work together – i.e., it is theoretically possible to increase the PPA pricing to a level where duration of the contract is otherwise unduly short and yet the QF could attract financing. This hypothetical is severely limited by South Carolina's regulated monopoly market whereby the QF is limited to only a single buyer: the utility. If a QF had multiple offtake options through a more robust commercial and industrial program or access to the wholesale market, shorter contracts could be more reasonable. The utility monopoly system in place in South Carolina is particularly why Act 62 encourages PPAs of longer duration. However, typically using the avoided cost methodology, the utility will not offer PPA pricing that can support a short contract term. Therefore, in order to provide QFs with commercially reasonable access to capital that both PURPA and Act 62 compliance mandate, both the PPA pricing and the initial term in combination must be strong enough to attract necessary capital.

In addition to allowing QFs some parity with the utility in financing their facilities, a fixed price, long-term PPA at a reasonable avoided cost purchase price is preferable, in many ways, to the utility's own decisions to invest in other types of generation facilities which binds the utility, and ultimately its ratepayers, to a generation modality and exposure to that modality's variable fuel, environmental compliance and other ancillary costs, that last for decades. Seen this way, fifteen and even twenty-year PPAs are some of the shortest generation commitments, and some of the least risky to ratepayers, that a utility can make.

9. <u>Avoided Cost</u>.

The purpose of this portion of my testimony focuses on the development of avoided cost rates as the likely purchase price under the majority of QF PPAs in South Carolina. It should be noted that neither PURPA nor its implementing regulations, nor Act 62, limits the avoided cost analysis to a single factor such as natural gas prices, nor do they require, as consistent with FERC Regulations, that avoided cost be adjusted over time as market conditions change. As with all facets of PURPA's implementation and now with Act 62 compliance, the balancing of PPA

avoided cost purchase prices with "just and reasonable" rates charged to end consumers, is a multi-factored, nuanced calculation that must take into account forward projections, the economic generation decisions the utility makes in real time, and the avoided cost of adding new capacity, and other factors.

Looking solely at the input of natural gas prices and their impact on avoided cost, there is wide volatility in fuel costs over time. In the 17 years since the Energy Information Administration began tracking natural gas used in the electricity generation sector, prices have quadrupled from and then returned to their 2002 levels.[4] Forward projections for natural gas prices show similar variability. The EIA projects that natural gas prices will triple over the next 30 years.[5] As a finer point, the agency estimates that prices for natural gas used for electricity generation would almost double within the period of a QF 15-year PPA signed in 2020.[6] Upon the expiration of that initial term of the PPA in year 2035, it is presumed that the QF will sign another PPA with higher rates based on higher avoided energy value. This is another way that longer contracts in a period of historically low natural gas prices and only marginal capacity value could be a huge benefit to and protective of ratepayers. Not only do QFs provide a shorter term generation decision than anything else in the utility's mix, they also provide in essence a fixed fuel cost rider, hedging the utility, and protecting the ratepayers, against increases in fuel costs.

It is thus reasonable for the Commission to oversee a process for setting avoided cost rates for QF PPAs that take into account the benefits of predictability around both fuel type and fuel cost that a QF provides. The current proposals by the utility for avoided cost in this proceeding do not reflect these benefits of QF procurement to South Carolina ratepayers and should thus be adjusted by the Commission.

10. Length of PPA Term.

The longer the contract term, accompanied by a reasonable avoided cost-based purchase price, the more mainstream capital will be available for QF development. PURPA and FERC regulations defer to Commissions to direct PPA terms. In South Carolina, Act 62 recommends a

[4] https://www.eia.gov/dnav/ng/hist/n3045us3m.htm
[5] *Id.*
[6] https://www.eia.gov/outlooks/aeo/data/browser/#/?id=13-aeo2019&cases=ref2019~ref_no_cpp&sourcekey=0

ten-year term as a starting point, but does not limit PPAs to ten years. Indeed, Act 62 expressly encourages this Commission to support longer-term contracts as a means of promoting renewables. Act 62 also suggests that the Commission consider decrements to avoided cost for PPA terms of longer duration, within the constraint that such adjustments, as with all other PPA factors, must not discriminate against the QF and must promote renewable energy in South Carolina.

The base PPA term must also be set within the larger context of the benefits long-term QF contracts bring to ratepayers as opposed to utility-developed and -owned generation resources. As noted above, QFs provide greater generation portfolio diversity to the utility, yet also supply medium- to long-term hedges against fuel price variations. In addition, unlike other generation models owned and financed by the utility which passes to its customers for decades the cost of those facilities, including potentially billions in stranded costs of abandoned construction, QFs accept the total risk of financing, building and operating their facilities. In the previous 24 months, Dominion Energy South Carolina (formerly "SCE&G") sought rate recovery from its ratepayers in the amount of over $5 billon after it abandoned construction of new nuclear units at the V.C. Summer Nuclear Facility[7] and Duke sought rate recovery from its ratepayers in the amount of $541 million after it also abandoned construction of the planned Lee Nuclear Station[8]. QFs, in contrast, must source and pay for financing that is not backed by a guaranteed revenue source, such as the utility monopoly's structure, for the life of its system. If the cost to build the QF runs over budget, the QF owner, and not the South Carolina ratepayer, is on the hook. If environmental regulators require bonds to secure safe and efficient dismantling of the system at decommissioning, that environmental compliance rests entirely on the QF owner. Once the PPA rate is set, the QF cannot go back and request that the utility cover either its ordinary or extraordinary costs. The QF owner has to smartly and creatively pay for everything, a burden that the utility does not bear. The utility enjoys the luxury that an over-budget project can increase returns for a utility where regulators permit.

[7] https://www.bizjournals.com/charlotte/news/2017/08/15/s-c-electric-gas-has-withdrawn-its-petition-to.html

[8] https://www.bizjournals.com/charlotte/news/2017/08/25/duke-energy-abandons-plans-to-build-the-lee.html

While expressing purported concerns over ratepayer exposure due to long-term fixed price QF contracts on the one hand[9] Duke has on the other hand sought such contracts – of terms even longer than are being proposed here in South Carolina – in other jurisdictions. In North Carolina's recent Tranche 1 of its Competitive Procurement of Renewable Energy, Duke as a developer/owner of QFs seized almost 45% of all PPAs awarded, all of which were 20-year fixed price contracts.[10] In Georgia, Duke showed even less consistency with its arguments about allegedly protecting retail customers by competing for and taking thirty-five year fixed-price PPAs from the local utility.[11] Either Duke is blatantly disregarding the interest of customers in GA and other states where it's deregulated business regularly signs PPAs for longer than 10 years, or it is being disingenuous about the actual risk to ratepayers from longer term PPAs.

In addition to fair and reasonable contract terms, the expansion of QFs in South Carolina as envisioned by PURPA and further prioritized by Act 62 rests on the ability of QFs to attract regularly available, market-rate financing from reputable providers, which in turn relies on commercially reasonable PPA contracts of a sufficient length for fairly calculated avoided cost rates that appropriately and adequately value the long-term ratepayer benefits QFs contribute to the electricity marketplace in South Carolina.

Q. WHAT DO YOU RECOMMEND ON THE BASIS OF THESE CONCLUSIONS?

A. While I recognize that the General Assembly has specifically mentioned 10-year contracts as a minimum PPA length the utility must offer, the avoided cost pricing proposed by Duke will make it difficult for most projects to obtain financing for a 10-year contract. Thus, I recommend that the Commission set the tenor of length of PPA contracts at a minimum of fifteen (15) years with appropriate conditions as set forth in SC Code Ann. § 58-41-20(F)(1) to facilitate the opportunity to obtain financing for a majority of QFs in South

[9] See Brown testimony, p. 12, line 8 through p. 15, line 13; Wheeler testimony, p. 20, line 22 through p.21, line 11 and p. 23, lines 11-17.

[10] https://news.duke-energy.com/releases/competitive-process-yields-carolinas-biggest-one-day-collection-of-solar-projects-ever-significant-savings-for-duke-energy-customers

[11] https://news.duke-energy.com/releases/duke-energy-renewables-completes-nine-solar-projects-in-conjunction-with-georgia-powers-renewable-energy-development-initiative

Carolina. Further, to best comply with Act 62's goal to promote renewable energy development in the state, I recommend that the Commission direct that Duke's PPAs be offered at longer than fifteen years and in some cases twenty (20) years or longer, again with the appropriate statutory conditions. I also recommend that avoided cost rates reflect the value of QFs in providing certainty of fuel pricing, a hedge against future increases in fuel costs, and protection for ratepayers from the myriad of ratepayer cost risks that accompany utility-owned generation resources.

III. DEC's Current Avoided Cost Practices

Q. HAVE YOU REVIEWED DUKE'S PREVIOUS AVOIDED COST FILINGS IN SOUTH CAROLINA BOTH AS TO RATE AND TENOR?

A. I have reviewed the Companies' previous avoided cost proceedings and am aware that Duke unilaterally made the decision in 2017 to stop offering PPAs in South Carolina for terms greater than five (5) years.

Q. HAS DUKE PROPOSED SIGNIFICANT CHANGES IN THEIR INITIAL FILING IN THIS PROCEEDING THAT INCREASES THE OPPORTUNITY TO OBTAIN FINANCING FOR QFS?

A. No. Duke does not provide any indication that they intend to offer PPAs of longer duration. Further, Duke's low proposed avoided cost pricing for both DEC and DEP coupled with their proposed integration charge will reduce QFs' opportunity to obtain financing and does not comply with the requirements of Act 62. If anything, Duke's low proposed avoided cost rates further justify the need for longer PPA tenor to make financeable. A longer term PPA would further protect the ratepayers given Duke's low proposed avoided costs and the fact that locking in a longer term PPA would prevent future increased rates to Duke's ratepayers.

Q. DOES THIS COMPLETE YOUR DIRECT TESTIMONY?

A. Yes.